

CLAIMS

1. A radiation detector comprising:

radiation detecting means for detecting incident radiation to output a detected signal,

5 signal processing means for processing the detected signal from the radiation detecting means, and

a wiring substrate section having a wiring substrate with a conduction path provided for guiding the detected signal between a signal input surface and a signal output surface, the radiation detecting 10 means and the signal processing means being connected to the signal input surface and the signal output surface, respectively, wherein

the wiring substrate includes a glass substrate formed of a predetermined glass material having a radiation shielding function and provided with a through hole, and a conductive member provided in the 15 through hole to serve as the conduction path for establishing electrical continuity between the signal input surface and the signal output surface, and

the radiation detecting means, the wiring substrate section, and the signal processing means are located in that order along a predetermined alignment direction, with the signal processing means being disposed with respect to the wiring substrate within an area other 20 than an area on an extension of the through hole.

2. The radiation detector according to Claim 1, wherein the wiring substrate has an electrode pad provided at a predetermined portion facing the signal processing means on the signal output surface 25 of the glass substrate and a wiring for electrically connecting between

the electrode pad and the corresponding conductive member.

3. A radiation detector comprising:

radiation detecting means for detecting incident radiation to output a detected signal,

5 signal processing means for processing the detected signal from the radiation detecting means, and

10 a wiring substrate section having a wiring substrate with a conduction path provided for guiding the detected signal between a signal input surface and a signal output surface, the radiation detecting means and the signal processing means being connected to the signal input surface and the signal output surface, respectively, wherein

15 the wiring substrate includes a glass substrate formed of a predetermined glass material having a radiation shielding function and provided with a through hole, and a conductive member provided in the through hole to serve as the conduction path for establishing electrical continuity between the signal input surface and the signal output surface, and

20 the radiation detecting means, the wiring substrate section, and the signal processing means are located in that order along a predetermined alignment direction, while an opening of the through hole provided in the wiring substrate from the signal input surface to the signal output surface is blocked with a shield member having a radiation shielding function.

25 4. The radiation detector according to Claim 3, wherein the shield member is configured such that a predetermined shield material having a radiation shielding function is filled in the through hole.

5. The radiation detector according to Claim 3, wherein the shield member is a bump electrode which is formed of a predetermined shield material having a radiation shielding function and which is electrically connected to the conductive member provided in the through hole.

6. The radiation detector according to any one of Claims 1 to 5, wherein the glass substrate is formed of the glass material that contains lead.

10 7. The radiation detector according to any one of Claims 1 to 6, wherein the conductive member is formed on an inner wall of the through hole provided in the glass substrate.

8. The radiation detector according to any one of Claims 1 to 6, wherein the conductive member is filled in the through hole provided in the glass substrate.

15 9. The radiation detector according to any one of Claims 1 to 8, wherein the glass substrate is provided with the plurality of through holes while a plurality of hollow glass members that are open at both ends are fused together and integrally formed.

20 10. The radiation detector according to any one of Claims 1 to 9, wherein the radiation detecting means includes a scintillator for generating scintillation light by radiation made incident, and a semiconductor photodetecting element for detecting the scintillation light from the scintillator.

25 11. The radiation detector according to any one of Claims 1 to 9, wherein the radiation detecting means includes a semiconductor detecting element for detecting radiation made incident thereon.

12. The radiation detector according to any one of Claims 1 to 11, wherein at least either the wiring substrate section and the radiation detecting means or the wiring substrate section and the signal processing means are electrically connected to each other via a bump electrode.

5